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Fall 2009

## CS 409/609: Principles of Artificial Intelligence

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# CS409/609: PRINCIPLES OF ARTIFICIAL INTELLIGENCE FALL 2009

## INFORMATION SYLLABUS ASSIGNMENTS

### TENTATIVE SYLLABUS (SUBJECT TO REVISION ACCORDING TO PROGRESS)

Day	Topic	Reading	Optional Reading
9/08/08	General Introduction to AI	RN 1	<u>Artificial Intelligence</u> at Wikipedia; <u>Computing Machinery and Intelligence</u> by A. Turing
9/10/08	Search Problems	RN 3.1-3.3	
9/15/08	Blind Search	RN 3.1-3.7	
9/17/08	A* Search and Heuristic Functions	RN 4.1-4.2	<u>A* Search</u> at Wikipedia
9/22/08	Local Search	RN 4.3-4.4, 7.6	
9/24/08	Local Search; Searching in Games	RN 6	
9/29/08	Searching in Games	RN 6	
10/01/08	Game Theory	RN 17.6-17.7	<u>Game Theory</u> at Wikipedia; <u>The Tragedy of the Commons</u> by G. Hardin; <u>News; Traveler's Dilemma</u> at Wikipedia <u>Traveler's Dilemma</u> at Scientific American
10/06/08	Summary of Search and Game Theory; Matlab Tutorial; Uncertainty and Probability	RN 13	<u>Matlab Manual</u> ; <u>Matlab Answers</u> at MIT; <u>Matrix Operations</u> ; <u>File Operations</u> ; <u>Plotting/Graphing</u>
10/08/08	Recitation for Homework and Exam; Probabilistic Reasoning using Bayesian Networks	RN 14.1-14.3	<u>Bayesian Network</u> at Wikipedia;
10/13/08	Midterm		
10/15/08	Inference in Bayesian Networks	RN 14.4-14.5	<u>Judea Pearl's classic paper</u> ; <u>Belief Propagation</u> at

			WikiPedia;
10/20/08	Learning with Maximum Likelihood	RN 20.2	
10/22/08	Learning with Hidden Variables	RN 20.3	
10/27/08	Hidden Markov Models; Speech Recognition	RN 15.3	<u>HMM</u> at WikiPedia; <u>HMM tutorial</u> by L. Rabiner; <u>Examples</u>
10/29/08	Neural Networks	RN 20.5	
11/03/08	Decision Trees	RN 18.3	
11/05/08	Decision Theory; Markov Decision Processes	RN 16.1-16.3; 17.1-3	<u>Markov Decision Process</u> at WikiPedia;
11/10/08	Reinforcement Learning	RN 21.1-21.6	<u>Reinforcement Learning</u> at WikiPedia
11/12/08	Statistical Machine Translation	RN 23.4	<u>Machine Translation</u> at WikiPedia; <u>Machine Translation</u> from Jurafsky and Martin's <i>Speech and Language Processing</i> ; <u>Google Translator</u>